

Name: _____

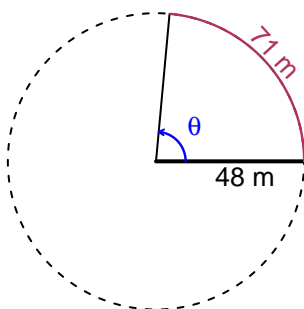
Date: _____

Trig Final (Practice v38)

- You can use a calculator (like [Desmos](#))
- You should have a unit-circle with special angles and coordinates marked.

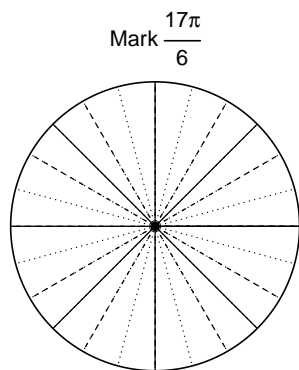
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 71 meters. The radius is 48 meters. What is the angle measure in radians?

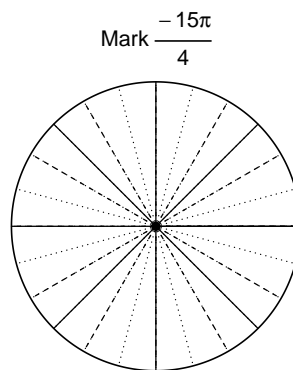


Question 2

Consider angles $\frac{17\pi}{6}$ and $\frac{-15\pi}{4}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{17\pi}{6}\right)$ and $\cos\left(\frac{-15\pi}{4}\right)$ by using a unit circle (provided separately).



Find $\sin(17\pi/6)$



Find $\cos(-15\pi/4)$

Question 3

If $\cos(\theta) = \frac{-36}{85}$, and θ is in quadrant II, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 5.86$ meters, a frequency of 7.31 Hz, and an amplitude of 3.3 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).